Using CMMI to Improve your Software Development Capability

2012

Patricia A Eglin
Intro to CMMI Instructor
Agile Coach
Measurements Specialist

610-644-2856 ext 24
Introduction

• Objectives:
  – To provide an overview of the SEI Capability Maturity Model Integration® (CMMI) focusing primarily on:
    • Aspects of successful implementation and sustainment
  – To describe senior management’s role in implementing and sustaining CMMI-based process improvement
  – We will not cover model specifics.
CMMI Model

- Sponsored by the DoD and the National Defense Industrial Association (NDIA)
- Involved collaboration between industry, government, and the Software Engineering Institute
- Improves the usability of capability maturity model technology across multiple disciplines
  - Uses common terminology, components, and model construction
  - Reduces redundancy and inconsistency between standalone models
- Integrated Appraisal Method provides a consistent method for both internal assessments & external evaluations

Source: SEI
What CMMI Is and Is Not

• Is a model for organizational improvement
  – Benchmarks the process not the product
  – Provides a framework for staged growth, i.e., process and capability maturity
  – Continuous process improvement stressed
• Is an underlying structure for reliable and consistent CMMI-based appraisals
• Is a community-owned guide; the result of a national consensus
  – Use of standardized language and goals facilitates adopting best practices from across the software community
• Is not an academic “ivory tower” exercise
• Is not limiting
  – Does not limit the choice of life cycle
  – Does not require or preclude specific software, technologies or language
  – Does not require that documentation conform to any particular set of standards
Why Organizations Use The CMMI

• “Common sense engineering” approach to a pervasive need for process improvement
  – Provides objective state-of-the-practice guidance to make judgments
• Has worldwide recognition and respect
• Some customers demand it
• Competitors are using it to improve their performance, quality, and capability
Benefits Of Mature Process

- Improved Quality
- Improved Productivity
- Reduction in Waste
- Increased Predictability
- Stronger Team Interaction
- Improved Communication
- Competitive Edge
- Defined Roles/Responsibilities
- More Product Demand & Increased Market Share
- Framework for Continuous Improvement

Organizational Quality Awareness!
Benefits to the Individual Practitioner

- Less frustration
- Fewer surprises
- Feeling that their input is important
- Data to support estimates are available
- Less time spent in crisis mode
- More time to be creative
CMMI Basic Fundamentals

• CMMI describes “what” is done, not “how” it is done.
• Consists of best practices that address the development and maintenance of products and services covering the product life cycle from conception through delivery and maintenance.
• The CMMI model has levels of process maturity and achieving a specific level of maturity results in increased process capability.
• CMMI is a set of recommendations for quality software engineering; it prescribes guidance and checkpoints.
CMMI Representations

• Staged Representation
  – Roadmap for a sequence of steps to take for process improvement
  – Each maturity level provides foundation for next level
  – Process areas are fully contained within a single maturity level

• Continuous Representation
  – Allows flexibility in addressing process areas most critical to an organization’s business objectives
  – Each process area has generic and specific practices at capability levels
  – Provides guidance for incremental improvement approach within each process area
What does it take to really make this work???
Management Responsibilities

• Providing strategic vision and tactical direction
• Setting quality and process goals
• Reviewing the effectiveness and suitability of the process improvement program
• Ensuring that lessons learned and best-in-class examples are disseminated
• Addressing change in goals, dates, budget, scope, etc.
• Communicating with the organization’s business partners
• Addressing obstacles, issues and risks that impact improvement goals
• Reviewing results of PPQA reviews and process appraisals
• Reviewing process and product metrics
EPG Responsibilities

• Oversee development, implementation, and usage of processes for use
• Serve as the Change Control Board (CCB) for the change request processes
• Review and either approve or reject process change requests
• Prioritize process changes
• Form and oversee individual PATs chartered to address specific process needs
• Review results of PPQA reviews
• Review process implementation results with the management team
• Provide training on the organization’s standard processes, including new processes and process updates
• Communicate process issues to the organization
• Serve as keeper of the Process Asset Library
• Collect project and organization lessons learned
• Share information about experiences implementing and using the processes
Who are the EPG?

They are **Change Agents!!**

They have the skills to be:

- Visionary
- Advocate
- Navigator
- Confidant, Supporter
- Coach
- Subject-matter expert
- Role Model
Additional EPG Required Skills

- Knowledge and experience of business
- Are able to
  - Teach other people
  - Explain how methodologies may, or may not be useful
  - Respond convincingly and accurately to questions
  - Help organization understand current status of organization
  - Guide the management team in development of strategy and plans appropriate to organization’s status and needs
Common Complaints
Common Complaints

Too Much Process!!

Adds to much time and expense to my project

The client won’t pay for that!
Is This Thing On??

• It isn’t the 80s or 90s anymore…it’s 2012!
• Heavy process are no longer “IN”

• Processes should work within the parameters of your organizations development methodology.
  – Agile or Lean included

• The Point is to:
  – take advantage of years of experience by successful companies
  – reduce rework/reduce costs
Recent Model Changes

- The model isn’t stuck in the 80s either.
  - The model changes to reflect the changing times.

- Agile references have been added to the model
- No more “IPPD”
- The 16 core process areas have been “commonized”
- The Intro to CMMI training class has been completely revised
- Updated some glossary definitions to be more inline with ISO definition
- Introduced verbiage in IPM to show the importance of casual analysis and resolution at a lower maturity level
Recent Tidbits from the SEI

• According to Capers Jones' latest research CMMI is still one of the top 5 most highly implemented quality model.

• Gartner and Forrester estimate there will continue to be a 6-7% increase in the implementation of CMMI in the IT market.

• 80% of all CMMI appraisals are being done by commercial clients and 66% of those are done by organization of less than 100 people.

• NDIA working group introduced the idea of a "Surveillance Audit" which can be done in between SCAMPI As. The difference between this and a SCAMPI B, they are proposing it as a "mini spot check" but it will extend the 3 year appraisal results up to a max of 7 years.

• There is talk to add security and information security into CMMI-DEV in the next version. It has not yet been determined if it will be in a new PA or SPs.

• There is consideration to adding "maturity Measures" in place to show continuous process improvement between SCAMPI As. this means that organizations could no longer stop following their processes and wait the 3 years to get things in order before their next assessment. there would now be measures they need to submit to prove they have continued the effort between the assessments.
• **Albuquerque, New Mexico**
  – March 12-15, 2012
• **To find out about the program:**
  – [http://www.sei.cmu.edu/sepg/na/2012/program.cfm](http://www.sei.cmu.edu/sepg/na/2012/program.cfm)
  – **Come visit DCG’s booth!!**
    • Meet Mike Harris, Owner
    • Meet Tom Cagley, VP Process Improvement
    • Meet Me, Pat Eglin, Instructor, Consultant
Summary

• The CMMI is an excellent framework for process improvement
  – World-wide success in using CMMI
  – CMMI is adaptable to many different environments
• Success will depend upon how well process improvement is managed and the concepts of successful change management are practiced
Additional Information

• David Consulting Group
  – http://www.davidconsultinggroup.com

• SEI
  – http://www.sei.cmu.edu

• Pat Eglin
  – p.eglin@davidconsultinggroup.com